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(54) **Planar solid electrolyte cell stack working as oxygen pump, with offset seals and biasing electrodes**

(57) An electrochemical device for separating oxygen from an oxygen-containing gas comprises a plurality of planar ion-conductive solid electrolyte plates and electrically-conductive gas-impermeable interconnects assembled in a multi-cell stack. Electrically-conductive anode and cathode material is applied to opposite sides of each electrolyte plate. A gas-tight anode seal is bonded between the anode side of each electrolyte plate and the anode side of the adjacent interconnect. A basing electrode, applied to the anode side of each electrolyte plate between the anode seal and the edge of the anode, eliminates anode seal failure by minimizing the electrical potential across the seal. The seal potential is maintained below about 40 mV and preferably below about 25 mV. A gas-tight seal is applied between the cathode sides of each electrolyte plate and the adjacent interconnect such that the anode and cathode seals are radially offset on opposite sides of the plate. The combination of biasing electrodes and offset seals is particularly effective in eliminating anode seal failure.

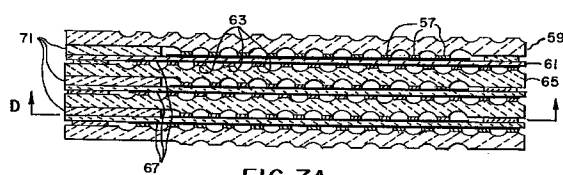


FIG. 7A

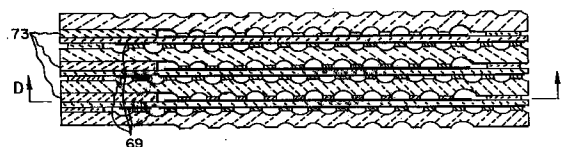


FIG. 7B

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EUROPEAN SEARCH REPORT

Application Number
EP 97 11 6357

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A,D	US 4 885 142 A (SUITOR JERRY W ET AL) * the whole document * ---	1-15	
A,D	US 5 186 806 A (CLARK DOUGLAS J ET AL) * the whole document * ---	1-15	
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The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 9 March 1998	Examiner Engl, H
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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EUROPEAN SEARCH REPORT

Application Number
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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
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The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 9 March 1998	Examiner Engl, H
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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